

10/526700
DT01 Rec'd PCT/PT 04 MAR 2005**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1-11 (canceled)

Claim 12 (new). A method of comparing a data key to a rule, the method including:

dividing the data key into a plurality of chunks,

extracting data from a memory at an address corresponding to the value of each of at least some of the chunks, the data being previously stored at the address of the memory such that the data has a value corresponding to whether a bitwise comparison of the chunk of the corresponding data key with a portion of the mask is equal to a bitwise comparison of the portion of the mask and a corresponding portion of the rule; and

examining the data extracted from each memory address corresponding to the at least some of the chunks to determine if the rule is obeyed for the entire data key.

Claim 13 (new). The method according to claim 12, wherein the memory is structured into chunks corresponding to the chunks of the data key, the chunks of the memory being grouped into sections, and wherein the method further comprises simultaneously for different sections of the memory successively extracting the data for the corresponding chunks of memory within each section.

Claim 14 (new). The method according to claim 12, wherein address from where the data is extracted data corresponds to chunk of the data key.

Claim 15 (new). A method of comparing a data key to portions of a plurality of rules, the portions being defined by corresponding masks, the method including:

dividing the data key into chunks,
successively for each of said rules:

(i) extracting data from an address obtained from each of the chunks of the data key, the data being stored at the address of the memory such that the data has a value corresponding to whether a bitwise comparison of the chunk of the corresponding data key with a portion of the mask is equal to a bitwise comparison of the portion of the mask and a corresponding portion of the rule; and

(ii) examining the data extracted from each of the chunks of the data key to determine if the rule is obeyed for the entire data key.

Claim 16 (new). A method according to claim 15 wherein the memory is structured two dimensionally, a first dimension corresponding to the chunks of the data key and a second dimension corresponding to the different rules.

Claim 17 (new). The method according to claim 15 wherein examining the data further comprises performing at least one AND operation on the data extracted from each of the chunks to determine if the rule is obeyed for the entire data key.

Claim 18 (new). A system for comparing a data key to portions of a plurality of rules defined by corresponding masks, the system including:

an interface configured to receive the data key, and to divide the data key into chunks,

a memory configured to receive the chunks of the data key from the interface, and for successive rules, to use the chunks of the data key and the rule as address data to extract data indicative of whether a bitwise comparison of each chunk of the data key with a corresponding portion of the mask is equal to a bitwise comparison of the corresponding portion of the mask and the corresponding portion of the rule; and

a comparator for examining the data extracted from the memory to determine if the rules are obeyed for the entire data key.

Claim 19 (new). The system according to claim 18, wherein the memory is structured two dimensionally, with a first dimension corresponding to the different chunks of the data key and a second dimension corresponding to the different rules.

Claim 20 (new). The system according to claim 19, wherein the memory comprises a plurality of memory devices, each memory device corresponding to multiple chunks of the data key, such that all of the memory devices together correspond to all of the chunks of the data key.

Claim 21 (new). The system according to claim 20, wherein the rules are divided into groups of rules, and wherein each memory device stores the data corresponding to one of the groups of the rules.

Claim 22 (new). The system according to claim 18, wherein the memory further comprises a plurality of memory devices, the rules are divided into groups of rules, and each memory device stores the data corresponding to one of the groups of the rules.

Claim 23 (new). The system according to claim 18, wherein the interface further comprises registers configured to store the data key.

Claim 24 (new). The system according to claim 23, further comprising registers coupled to the comparator for storing the results for different rules.

Claim 25 (new). The system according to claim 18, further comprising registers coupled to the comparator for storing the results for different rules.

Claim 26 (new). The system according to claim 18 further comprising a switching unit configured to switch between modes of the system, each mode having one of a plurality of respective numbers of bits in each data key and one of a plurality of numbers of rules.

Claim 27 (new). The system according to claim 24 further comprising a switching unit configured to switch between modes of the system, each mode having one of a plurality of respective numbers of bits in each data key and one of a plurality of numbers of rules.

Claim 28 (new). A data switch comprising a parsing system configured to extract a data key from received packets, and a system configured to compare the extracted data key to portions of a plurality of rules defined by corresponding masks, the system including,

an interface configured to divide the data key into chunks,

a memory configured to receive the chunks of the data key from the interface, and for successive rules, to use the chunks of the data key and the rule as address data to extract data indicative of whether a bitwise comparison of each chunk of the data key with a corresponding portion of the mask is equal to a bitwise comparison of the corresponding portion of the mask and a corresponding portion of the rule; and

a comparator for examining the data extracted from the memory to determine if the rules are obeyed for the entire data key.

Claim 29 (new). The data switch according to claim 28 wherein the memory is structured two dimensionally, a first dimension corresponding to the different chunks of the data key and a second dimension corresponding to the different rules.

Claim 30 (new). The data switch according to claim 29 wherein the memory comprises a plurality of memory devices, each memory device corresponding to multiple chunks of the data key, such that all of the memory devices together correspond to all of the chunks of the data key.

Claim 31 (new). The data switch according to claim 30 wherein the rules are divided into groups of rules, and wherein each memory device stores the data corresponding to one of the groups of the rules.